Cross-Site BCC Research Ideas Proposed for Supplemental Funding

Statement of primary research question: To conduct a cross-site analysis of the Self-determination theory (SDT) model of health behavior change and their relation to depression. Structural equation modeling (SEM) will be used to determine the extent to which change in perceived autonomy predicts change in health behaviors and depressive symptoms over time. Adherence to the behavioral regimen will be tested as a mediator between perceived autonomy and development of depressive symptoms.

Contribution of proposed activity to theory development/measurement enhancement: Six BCC sites representing some 8800 participants have completed autonomy, health behavior change (smoking, exercise and or diet) and depressive symptoms, with some sites also measuring competence and autonomy support provided the BCC investigators at the start of the grants. This sample size will allow confirmatory factor analyses, and causal modeling of autonomy as common predictor of behavior change and depressive symptoms across sites. In addition, we intend to develop a "transbehavioral outcome" metric based on estimates of reduction in 30 year mortality that will allow combining the different health outcomes (Woolf, 1999), and alternatively based on clinically preventable burden of disease (Coffield et al, 2001). Development of this metric will facilitate translation of BCC findings for policy makers and clinicians alike. We will also explore causal paths of failure in adhering to behavior change as a mediator between perceived autonomy and development of depression. Finally, we will test the mediation of perceived autonomy on the relationship of motivational interviewing interventions and the change in health behavior. This last theoretical test will potentially link the technique of MI to the mediator of perceived autonomy for the first time.

BCC's unique position to address this research question: The BCC sites comprise the largest number of participants completing this set of measures (at least 10 times larger than previous data sets). The BCC also represents the first time change in perceived autonomy will be measured over time in relation to MI interventions. Finally, the longitudinal nature of the BCC data sets will allow the first time exploration of the development of depression as a failure to achieve a desired and recommended health outcome.

Specific research question and hypotheses:
1) To test the mediation of perceived autonomy between BCC interventions and outcomes of individual health behavior change, between the BCC interventions and the combined outcome of reduction of 30 year mortality, and between BCC interventions and depression.
2) To test the mediation of adherence to recommended health behaviors between perceived autonomy and development of depressive symptoms.
3) To test the more specific hypothesis that perceived autonomy is enhanced by BCC interventions based on motivational interviewing.

Sites: University of Rochester (smoking and diet), Stanford (exercise), Oregon Research Institute (diet and exercise for patients with diabetes), University of Tennessee (exercise), University of Michigan (smoking, diet, exercise), Emory (diet and exercise), and Oregon Health Science (diet, exercise).

Data: Perceived autonomy, health behaviors (smoking diet, and exercise), demographics, and depressive symptoms.

Time Frame: Baseline data can be used for confirmatory factor analysis, change analyses will be conducted after outcomes obtained. We estimate the analyses will take 12 months from time final data is collected (3 years).

Analysis: Structural equation modeling with growth curve analysis will be used to test the SDT and depression hypotheses above. Consultation with CDC (Woolf, and Coufield) will be used to develop a transbehavioral metric.

Estimated Resources: $150,000 direct costs estimated. 10% effort from PI at University of Rochester, 15% effort Holly McGregor and 15% Chantal Levesque University of Rochester for data management and analyses. Edward Deci PhD will also participate (3%) in the planning and execution of the analysis. Consultation costs for CDC data base for mortality and CPB based "transbehavioral" outcomes, and biostatistician. $2,000 per site for data management and transfer. 1 computer and SEM software, travel to 3 meetings. These may be additional costs for input from investigators at other sites.

NIMH has looked at this as a potential administrative supplement, and has expressed interest. It has asked if there is a potential co-funder. Also, we need support into the year after BCC ends to complete analyses.

Team Leader/Team Members: Geoffrey Williams MD, PhD, Chantal Levesque, PhD, Holly McGregor Senior Graduate Student University of Rochester, Ruth Kouides MD, MPH. Potential for additional investigators to join us.

References:

Coffield, Maciosek, McGinnis et al. Priorites among Recommended Clinical Preventive Services. A.J. Prev Med 2001;21(1):1-9.

Woolf S.H.: (1999). The Need for Perspective in Evidence-Based Medicine. JAMA 282:2358-2365.